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Epiphora; Lachrymal Abscess;  
Congenital Absence of Lach-  
rymal Punctae; Stricture  
of the Lachrymal  
Duct.

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ILLUSTRATED

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\*EPIPHORA; LACHRYMAL ABSCESS; CONGENITAL ABSENCE OF LACHRYMAL PUNCTAE; STRICTURE OF THE LACHRYMAL DUCT.

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I present to you today a group of cases which possibly in the whole range of ophthalmic surgery gives more trouble to the surgeon and is more discomforting to the patient than any other disease with which we have to deal. The least exposure to cold or draughts of air causes the tears to flow over the margins of the eyelids, and in many cases produce eczematous eruptions on the cheeks. The presence of pus in the lachrymal sac causes not only an inflammation of the nasal cavities, but also of the conjunctiva, and this condition leads to radical changes in the delicate tissues of the eyelids and Schneiderian membrane of the nose. Not only is the appearance of the eye repugnant, but the foul odor from the diseased bone in the nasal cavity is most offensive, and renders these unfortunate patients objects of sympathy. It therefore becomes your duty as surgeons to try to alleviate their sufferings as much as possible.

The seat of the trouble may exist anywhere along the track of the canal, from the opening of the puncta lachrymalia to its termination in the nasal fossae, and affects all ages, from the newly born to the aged. As you are aware the lachrymal gland, which secretes the tears, is situated in the orbit in the upper and outer quadrant. This gland, in its normal condition, secretes sufficient fluid to lubricate the eyeball and to aid in keeping the cornea nourished and in washing away extraneous matter, which otherwise would find lodgment on the transparent cornea and cause dimness of vision and probably permanent loss of sight by inflammatory reaction. When the epiphora is not induced by an affection of the mind, any inflammation of the conjunctiva will be sure to superinduce a hypersecretion of tears. This inflammation may affect the puncta, and then we should simply have an

\* Clinical lecture delivered to students Medico-Chirurgical College.

epiphora due to closing of the mouth of the canal by excitation, also stricture, diseased bone or abscess of the sac or canal leading on to graver conditions.

Case 1. A baby four weeks old. The mother tells me that a slight swelling was noticed in the child's right eye a few days after birth; a mild eye wash was applied and little or no trouble followed; the swelling disappeared. On account of the constant watering of the eye the patient was brought to the clinic. Upon careful examination, pressing the fingers on the nasal side of the sac, pus escapes through the puncta. As the pus escapes from the top of the canal there is evidently an obstruction at the nasal end of the passage. What is the treatment? Unless the canal is opened and drained freely, destruction of the lining membrane of the passage will take place, leading on to necrosis of the bone and the child be an object of misery during life. The antiphlogistic method was followed, which was proper and should always be tried first; failing, more radical methods must be carried out. In this case I shall open the canal with a Weber's knife, then insert



Fig. No. 1. Weber's Knife.

a No. 3 lead style and keep it in the canal until the pus has entirely disappeared, then follow this up by inserting a silver canula. Fortunately but few children of this age are afflicted, but when they are brought to our attention this treatment is the best to be followed; as the child grows the canal must be kept open by passing different size probes and reinserting a gold or silver canula.

Case 2. A young woman, who has had lachrymal trouble for at least five years, commencing, as she tells me, by a simple overflow of tears and eventually ending in chronic discharge of pus from the tear sac. This case forcibly illustrates the failure of treatment at the hands of the most able ophthalmic surgeons. For years she had all kinds of treatment, and I must also say the course I have pursued has not been more successful than that of my confreres. A short time ago I inserted two silver canulae; one carried off the secretions perfectly, the right did not, showing evidence of some obstruction. I renewed both canulae from time to time, passed probes, and so far as I was able to judge by the sensation of feeling was sure that I had dilated the canal



FIG. 2.

Skiagraph of two Canulae in Lachrymal Ducts.—Occipito—Frontal view, showing deviated Septum.



FIG. 3.

Skiagraph Silver Canula. Lateral view.



FIG. 4.

Skiagraph of Silver Canula after being buried in canal one year.



in the nasal fossa. I even went so far as to change the size of the canula, putting in the canula No. 3, which is the largest size. I expected better results than I obtained. To ascertain the cause and possibly to aid me in the treatment, I had Dr. Kassabian take a skiagraph of the patient's face and the photograph which I hand you is the result. I find a deviated septum which has changed the course of the lachrymal canal and the mouth of the style is closed by the tissues of the lateral wall of the nostril. After discovering this I had the tube or canula cut off so that it would only extend to the roof of the nostril. The other canula projects directly into the nostril.

Case 3. Is a very rare instance of congenital absence of the puncta, yet strange to say that until the last year or two the patient did not suffer much from epiphora (watery eye). He is now leading an out door life and on windy days finds the hypersecretion of tears exceedingly annoying, so much so that he contemplated giving up his vocation.

In this case I opened up both puncta lachrymalia—the incision was made where the puncta should have been. I found the canals patent, but very narrow. I then passed a Weber's knife through the canal, the sac, and down through the lower canal. It was with difficulty that I was enabled to pass a small lachrymal probe through the canal. By gradually dilating it I managed to pass a full size probe and insert two No. 2 silver canulae. I had Dr. Kassabian take a side skiagraph (the photograph of which I pass to you gives the exact position of the canula), and from the fact that the tears are carried off as rapidly as they are secreted proves that the operative method adopted has been successful. (Fig. 3.)

Case 4. This little girl, five years of age, has had more or less inflammation of the right lachrymal canal since three months old. Her mother tells me that when an infant, shortly after birth, a swelling was noticed, which, when pressed upon would disappear and the eyeball become covered with pus—evidently the pus escaped from the sac and spread over the eye. About a year ago I opened the canal and inserted a silver canula. The mother did not return with the child to the clinic and in consequence the upper opening of the canal closed and has buried the canula in the lachrymal canal. The tears were carried off through the puncta in the upper eyelid, communicating with the canula which opened into the nostril. I had Dr. Kassabian make a skiagraph

and I now show you the photograph. As the canula has been buried in the tissue for over a year (Fig. 4) I shall open the closed canal, take out the canula and insert one of my latest models, which, I think, will answer the purpose better, and I will also insist that the child be brought to the clinic to keep the upper passage open.

As regards treatment of epiphora due to constriction of the orifice of the puncta or to conjunctivitis.—First, for the narrowing of the puncta we use a Nettleship steel dilator, which I show you. Mr. Nettleship made an improvement on the old style dilator (which was



Fig. 5.

Fox Improved Dilator.

formerly used and accompanied every French instrument box) by making a steel dilator with fluted edges running parallel with the handle; the objection to this instrument is that in trying to insert it into the constricted puncta the instrument will slip through your fingers. To overcome this fault I had one made exactly after the Nettleship instrument, but with filed edges after the style of American dental instruments. This gives you a better purchase and can be used in the gentle manner it should, without slipping.



Fig. 6.

Favorite Probes.

A weak solution of Nitrate of Silver (one-half grain to the ounce) is also a very excellent local remedy. Dilating the puncta, having the nasal passages examined, and, if any disease exists, having that attended to, also remedies the epiphora. If a deviated septum is the cause, have it straightened; sometimes errors of refraction, especially of hyperopia, produces excessive lachrymation. These errors should be corrected to insure good results.

The style, as a means of dilating the nasal duct, is a very old method. We take a piece of lead wire, pass it down into the canal, then cut it off and bend over on the cheek. A thin wire is to be followed by a succession of thicker ones until the full diameter of the duct is filled out. After each insertion of a style, the passage should be cleansed



on every re-application by tepid injections of boracic solutions or protargol. When the canal has the appearance of being healthy and free from discharge, a silver canula (Fig. 7), such as I show you, should be inserted.



Fig. 7.

Silver Canula Fox Model.

As to the kind of canula, each ophthalmic surgeon has his preference. This canula is after an original model used by Nathan.



Fig. 8 and 9.

Nathan. Dupuytren.—Old Style Canulae

The Fig. 9 represents a canula devised by the celebrated French surgeon Dupuytren, an excellent one in its day. Since its introduction modifications have been made.

In cases like these I show you the canal should be cut open with a Weber's knife, and this followed by the passage of a good sized probe through the channel and followed by the insertion of a silver tube. The slitting of the canal, passing of the knife downward, is apparently a simple operation, but it is not free from danger; false passages are easily made, or the knife may break by becoming wedged in the bony canal. Great care must be exercised, especially when there is necrosed bone, such as is present at times.

As regards treatment in general, mild astringent washes do good in certain cases, as do also dilatation of the puncta or the whole of the canal, and syringing as first suggested by Anel in 1712; but all of these methods count as many failures as cures. The modern treatment, as practiced by the French and German ophthalmic surgeons, consists in the introduction of fine probes, which of course, do not dilate to any extent while many of the English surgeons, on the other hand, dilate the canal to its fullest calibre. In this country ophthalmologists are divided as to which is preferable. My experience compels me to think

that the larger size produces the best results, and I follow it immediately with the introduction of a silver canula as I have above shown. I show you a skiagraph (Fig. 10) of a case in which the large size probe is inserted.

The details of the operation are carried out as you observe. I stand behind the patient, supporting his head against my body, and as the operation is being performed upon the left eye, I press the thumb of my right hand over the cheek bone and just along the lower edge of the eyelid, which by this action is drawn slightly downward and outward. The bulbous point of the Weber knife is inserted into the punctum and the handle is dropped below the horizontal plane of the eyelid. With the cutting edge of the blade inclined towards the eyeball the knife is pushed towards the nose, and when the point has touched the nasal bone the handle is raised to the vertical position; the cutting edge is rotated forward and is pushed firmly, yet gently, into the canal, burying the blade well up to the handle. As you notice, I have done this without difficulty and without giving much pain to the patient. I withdraw the knife, and by gentle pressure for a few minutes stop the bleeding. A silver probe of a large size, which passes well down into the canal is now inserted and is allowed to remain for several minutes, then withdraw it and place a silver canula in permanent position. The tube is allowed to remain in the canal for several days, when it will be removed, cleansed, and returned to its place. This may be repeated at intervals of several days, until the secretions have disappeared and a free opening is obtained,—when a canula is to be worn permanently I always have it made of gold. The present canula is a modification of the Strawbridge device, somewhat further improved by Bickerton and myself.

When we meet with a patient who has had more than one operation performed and cicatricial tissue has formed along the mouth of the sac it would be impossible to use a Weber's knife. We must try to make the opening with a different knife, and for this purpose nothing approaches a Stilling blade, such as I show you.

The method of inserting and passing the knife downward is the same as in other operations. The incision is followed by the insertion of a large-sized probe and canula. A very simple method of proving whether the canal is open is to have the patient shut his lips and close his nostrils with his thumb and finger, and then try to force the air



FIG. 10.

Skiagraph showing Silver Probe in Lachrymal Canal.

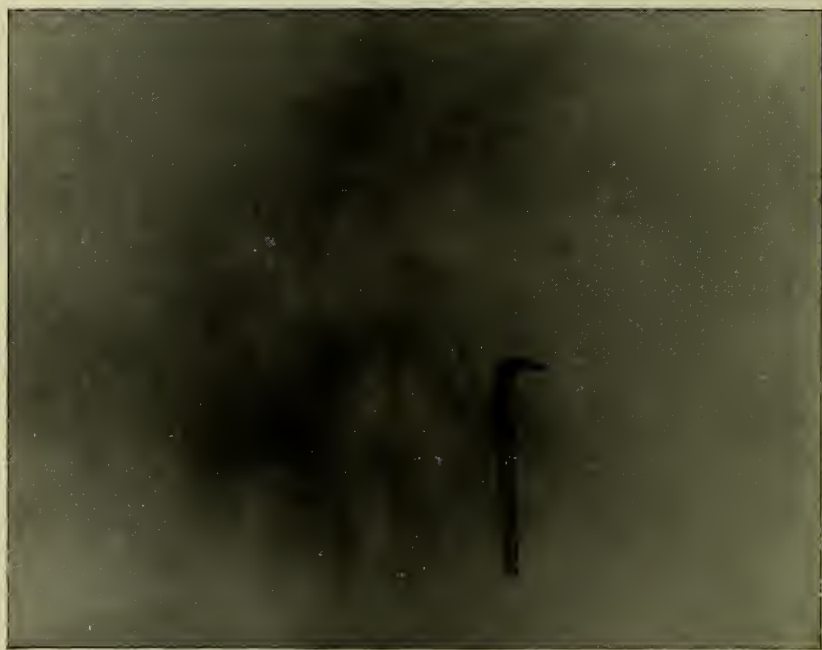


FIG. 12.

Gold Canula. Occipito—Frontal View.

through the lachrymal canula. I am going to ask the patient to do this. You notice that he succeeds. The after treatment consists in simply applying absorbent cotton, saturated with boracic lotion to which a little Vini Opii has been added (about two drachms to a four ounce mixture).



Fig. 11.

Stilling's Knife.

There are several important points to which I must call your attention before we dismiss these cases, and that is, first, great care must be observed in keeping the slit from the puncta to the opening into the sac free. This is easily done by running a blunt-pointed probe along this track daily for two or three days, also syringing the canal three times daily with an Anel syringe, taking out the canula, passing a large size probe and reinserting a clean canula.



